

PENNSYLVANIA RAILROAD, GALLITZIN TUNNEL
Pennsylvania Historic Railroad Bridges Recording Project
Beneath Allegheny Mountain
Gallitzin
Cambria County
Pennsylvania

HAER No. PA-516

HAER
PA
11-GALL,
2-

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
1849 C Street, NW
Washington, DC 20240

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Location: Beneath Allegheny Mountain, between Gallitzin, Cambria County, and Duncansville vicinity, Blair County, Pennsylvania.

USGS Quadrangle: Cresson, Pennsylvania (7.5-minute series).

UTM Coordinates: 17/708690/4483640 (east portal)
17/707600/4483870 (west portal)

Dates of Construction: July 1902 to May 1904.

Basis for Dating: Plaque on tunnel.

Dates of Alteration: 1905, 1912, 1920.

Designer: Pennsylvania Railroad: William H. Brown, Chief Engineer, William A. Pratt and C. S. d'Invilliers, assistant engineers.

Builder: P. F. Brendlinger.

Present Owner: Norfolk Southern Railroad.

Present Use: Railroad tunnel.

Structure Type: Concrete arch.

Significance: The Gallitzin Tunnel is significant as a parallel tube in the Allegheny Tunnel complex, which was the world's longest when completed in 1854. Added fifty years later, the Gallitzin Tunnel offers an interesting contrast in tunnel construction methods through nearly identical ground conditions.

Historian: Justin M. Spivey, April 2001.

Project Information: The Historic American Engineering Record (HAER) conducted the Pennsylvania Historic Railroad Bridges Recording Project during 1999 and 2000, under the direction of Eric N. DeLony, Chief. The project was supported by the Consolidated Rail Corporation (Conrail) and a grant from the Pennsylvania Historical and

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Museum Commission (PHMC). Justin M. Spivey, HAER engineer, researched and wrote the final reports. Preston M. Thayer, historian, Fredericksburg, Virginia, conducted preliminary research under contract. Jet Lowe, HAER photographer, and Joseph E. B. Elliott, contract photographer, Sellersville, Pennsylvania, produced large-format photographs.

See HAER No. PA-515, "Pennsylvania Railroad, Allegheny Tunnel," for photographs of the Gallitzin Tunnel.

Description and History

At its peak of success, three parallel tunnels carried the Pennsylvania Railroad (PRR) main line through the Allegheny Mountain summit. Construction had barely started on the first, known as the Allegheny Tunnel, when PRR began running trains between Philadelphia and Pittsburgh in 1852. For almost two years, the Allegheny Portage Railroad's inclined planes (a leftover from the Pennsylvania Canal) carried trains over the summit. PRR and the state-owned Portage Railroad raced to eliminate this slow and awkward connection, both tunneling through the summit between Blair and Cambria counties. PRR began using its two-track Allegheny Tunnel in February 1854. More than a year passed before the state finished its New Portage Tunnel, which PRR subsequently acquired but used only briefly.¹ PRR added a third tunnel through the summit, called the Gallitzin Tunnel, during a flurry of construction in the early twentieth century. Under the leadership of President Alexander J. Cassatt, the railroad spent record amounts tunneling under the Hudson River into New York City, separating passenger and freight traffic in eastern Pennsylvania, and upgrading its main line to four tracks across the state. In order to cross the Allegheny Mountain summit with four tracks, PRR installed two eastbound tracks in the long-abandoned New Portage Tunnel in 1903. The railroad used the Allegheny Tunnel's two tracks for westbound traffic until the Gallitzin Tunnel was completed the following year. The Allegheny Tunnel was then converted to single-track operation.² Although there was no net gain in the number of tracks, the new tunnel did improve throughput via increased clearances and faster operation through separate tubes. The Gallitzin Tunnel was also intended to serve as a bypass so that the Allegheny Tunnel could be closed for repairs.³

PRR engineering staff designed the Gallitzin Tunnel, under the supervision of Chief Engineer William H. Brown. Assistant Chief Engineer William A. Pratt also receives credit on a plaque near the west portal, as does C. S. d'Inwilliers, who supervised construction. The contractor was P. F. Brendlinger, who began work in July 1902 and finished in May 1904. An article in *Engineering News* remarked on the rapid pace of excavation, about 50'-0" per week, accomplished without intermediate vertical shafts. Pneumatic drills, superior explosives, and a locomotive-driven "muck" train were responsible for this rate of progress, which was more than triple that of the Allegheny Tunnel project half a century before.⁴

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The Gallitzin Tunnel measures 3,612'-0" in length, the same as the parallel Allegheny Tunnel, which lies 80'-0" on center to the south. Both tunnels ascend a 1.0 percent grade from east to west. Their portals are integrated into sandstone ashlar face walls at either end. There is only one internal connection between the two tubes, a 12'-0"-wide brick-lined passage located 1,400'-0" from the east end. The Gallitzin Tunnel has a horseshoe-shaped cross-section, 15'-7" wide and 19'-8" high.⁵ The contractor installed an unreinforced cast-in-place concrete lining atop sandstone rubble benches, using traveling form work of his own design.⁶ Presently the first 450'-0" from the east end has a different lining, consisting of the stone benches, brick walls, and a granite crown. According to PRR historian George S. Roberts, this was installed in 1912 to replace concrete deteriorated by water infiltration.⁷ The remaining concrete lining has been damaged by locomotive exhaust and repaired several times, including a shotcrete lining applied in 1920. A steam-driven ventilation complex was installed at the east portal in 1905 and used to push smoke ahead of westbound trains. During a reconstruction of the Allegheny Tunnel in 1941, both tunnels were fitted with electric fans.⁸ The ventilation complexes have since been demolished, although their foundations remain atop the retaining walls at the east end.

Notes

1. Louis Berger & Associates, Cultural Resource Group, "Allegheny Tunnel," in *Conrail Pennsylvania Clearance Improvement Project for Double-Stack Container Traffic*, vol. 4, *Stipulation #9: Tunnels* (East Orange, N.J.: Louis Berger & Associates, 1994), 5-6.
2. George S. Roberts, *Triumph I: Altoona to Pitcairn, 1846-1996* (Baltimore: Barnard, Roberts & Co., 1997), 131, 141.
3. "New Construction Work on the Pennsylvania R. R." *Engineering News* 47, No. 11 (13 Mar. 1902): 209.
4. "Construction Work on the Pennsylvania R. R. Between Harrisburg and Gallitzin." *Engineering News* 50, No. 13 (24 Sep. 1903): 276.
5. Cultural Resource Group, "Gallitzin Tunnel," in op. cit.
6. *Engineering News*, "Construction Work," 275.
7. Roberts, *Triumph I*, 132.
8. Cultural Resource Group, "Allegheny Tunnel," 11.

Acknowledgments

The author is grateful to Timothy C. Van Scoyoc, Acting Director of the Blair County Historical Society, and Leslie Conrad, Curator of the Cambria County Historical Society, for responding to a preliminary survey form.

Additional Source

1. Milepost 247.73, region/division/branch 402102, aperture card files, Consolidated Rail Corp., Philadelphia, Pa. [transferred to Norfolk Southern Railway Co., Atlanta, Ga.].